CALIFORNIA

FARMLAND CONVERSION

REPORT

1996 - 98

Prepared by the Staff of the

FARMLAND MAPPING AND MONITORING PROGRAM

California Department of Conservation

JUNE 2000

ACKNOWLEDGMENTS

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CREDITS

The Department of Conservation thanks the U.S. Department of Agriculture Natural Resources Conservation Service for providing modern soil survey maps and soil ratings. The Farmland Mapping and Monitoring Program relies on base information from the U.S. Geological Survey, the California Department of Water Resources, and Etak, Inc. for compilation of Important Farmland maps. Current aerial photography for the survey area has been provided by the High Altitude Missions Branch of NASA, the U.S. Department of Agriculture Consolidated Farm Service Agency, the Mojave Water Agency and private sector air photo libraries.

Data on areas participating in long-term agricultural set aside programs are provided courtesy of the U.S. Department of Agriculture Consolidated Farm Service Agency; and on lands converted to wildlife habitat by the U.S. Fish and Wildlife Service, California Department of Fish and Game, the Kern County Water Bank Authority, ARCO Products Co., and The Nature Conservancy.

The Department of Conservation also acknowledges the assistance it has received from map reviewers including county and city planning offices, county agricultural commissioners, resource conservation districts, Natural Resources Conservation Service district conservationists, California Farm Bureau Federation, University of California Cooperative Extension, California Cattlemen's Association, local water and irrigation districts, public interest groups, and building industry representatives. Many of these groups also participated in development of the Farmland of Local Importance definitions for their respective counties.

EXECUTIVE SUMMARY

Irrigated farmland lost ground to large new urban increases as the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) conducted its 1998 biennial land use inventory.

This inventory of agricultural and urban land use covers 44.1 million acres of the state's private and public land. The inventory covers 48 counties, 46 of which have modern soil surveys, and represents approximately 90 percent of the agricultural land in the state.

Maps and land use conversion statistics are provided to county and city officials to assist in the planning and management of California's resources. The *California Farmland Conversion Report 1996-98* represents the seventh biennial mapping cycle of the FMMP.

The overall urbanization rate during the 1998 inventory was up 25 percent from the previous reporting period

The 1998 update found 69,885 net new acres of Urban and Built-Up Land (Urban Land), compared to 55,896 new acres of Urban Land in 1996. A total of 21,664 acres (31 percent) of the new Urban Land came from irrigated farmland, up from 17,385 acres in 1996. The amount of Urban Land coming from marginal and nonirrigated categories in 1998 was 48,221 acres. Southern California, the San Joaquin Valley and the San Francisco Bay regions led the state in the amount of new Urban Land from all mapping categories.

The total amount of irrigated farmland in the project area declined by 40,473 acres. Prime Farmland accounted for most of the shift with a loss of 33,412 acres, followed by Farmland of Statewide Importance, losing 20,771 acres. The most common reasons for irrigated farmland loss were the cessation or idling of irrigated crop production, conversions to low density rural housing, urban residential and commercial development, and new golf courses.

Many losses to farmland were offset by new irrigated lands, especially vineyards, on lesser quality soils

Seventeen counties showed a net increase in farmland. The largest increases were in Santa Barbara, Sonoma and San Luis Obispo counties and the Sierra Valley area of Lassen, Plumas and Sierra counties. These counties recorded 18,390 acres of new irrigated farmland. The planting of new vineyards accounted for much of the net increase in the three coastal counties. Newly identified irrigated pasture and

alfalfa fields accounted for most of the new gains in the Sierra Valley. New farmland was also found in Madera County with the planting of deciduous orchards, and in Siskiyou County with new alfalfa plantings and irrigated pasture. Regions showing the largest increases in irrigated farmland were the Northeastern and Central Coast with a combined total of over 20,000 acres.

The Southern California Region showed the largest numerical increase in Urban, with 30,306 acres

The San Joaquin Valley Region ranked second in the growth of new Urban Land, marking a gain of 14,414 acres. In the San Francisco Bay Region there were 12,472 acres of new Urban Land, and the Sacramento Valley Region showed a gain of 6,791 acres. The Sierra Foothill Region experienced an increase of 3,276 Urban acres during the 1998 inventory.

Among all regions of the state, the San Joaquin Valley Region led in conversions of irrigated farmland to Urban, with 9,505 acres

Southern California ranked second in the conversion of irrigated farmland to Urban Land, with 6,817 acres. A total of 66 percent of the new Urban Land in the San Joaquin Valley Region, and 22 percent of new Urban Land in Southern California came from irrigated land. Riverside and Fresno counties led the state in the amount of irrigated land converted to Urban Land, with 2,335 and 2,269 acres respectively, followed by Orange County with 1,951 acres.

Riverside County led the state with 8,902 acres of new Urban Land, 2,335 acres coming from land previously mapped as irrigated farmland. Orange County followed with 7,740 of new Urban Land, with Kern County (4,343 acres), San Diego County (4,322 acres) and Fresno County (4,016 acres) rounding out the top five.

There was an 11 percent increase statewide in the amount of land reported as committed to future nonagricultural use, from 184,588 acres in 1996 to 205,746 acres in 1998. During the 1998 inventory there were 43,693 acres of irrigated land identified as committed to nonagricultural use, compared with 50,845 acres during the 1996 period.

CHAPTER ONE
INTRODUCTION

THE FARMLAND MAPPING AND MONITORING PROGRAM

The goal of the Department of Conservation's Farmland Mapping and Monitoring Program is to provide land use conversion information for decision makers to use in their planning for the present and future use of California's agricultural land resources. To meet this goal, FMMP provides maps and statistical data to the public, and local, state, and federal governments on a biennial basis.

The FMMP was established in 1982 to continue the Important Farmland mapping efforts started in 1975 by the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). The intent of the USDA-NRCS was to produce nationwide agricultural resource maps based on soil quality and land use. As part of this mapping effort, a series of definitions known as the Land Inventory and Monitoring (LIM) criteria were developed. The LIM criteria classified the land's suitability for agricultural production based on physical and chemical characteristics of soils and actual land use. Important Farmland maps are derived from USDA-NRCS soil survey maps using LIM criteria and the biennial monitoring conducted by the FMMP to determine the irrigation, cultivation and conversion status of the land in its inventory area.

The FMMP compiles two kinds of farmland maps: Important Farmland Maps for those areas that have modern soil surveys, and Interim Farmland Maps for those areas lacking modern soil survey information and for which there is expressed local concern on the status of farmland.

The first Farmland Conversion Report was released in 1988 and identified farmland changes from 1984 to 1986 for 38 counties, covering 30.3 million acres. Six subsequent reports have included additions to the project area as modern soil surveys became available. The present status of mapping, a total of 44.1 million acres in 48 counties, is shown on Figure 2.

MAPPING CATEGORIES

The following sections provide a brief description of mapping categories used on the Important Farmland and Interim Farmland Maps. A more detailed explanation of the technical parameters which qualify lands to be classified in these categories is contained in the Department of

Conservation's publication *A Guide to the Farmland Mapping and Monitoring Program*, or through the FMMP Web site at www.consrv.ca.gov/dlrp/fmmp.

Important Farmland Map Categories

Important Farmland maps for California use eight mapping categories, generally explained below. The minimum mapping unit for each category is 10 acres unless otherwise noted.

PRIME FARMLAND
Farmland with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

FARMLAND OF STATEWIDE IMPORTANCE
Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

UNIQUE FARMLAND
Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. The land must have been cropped at some time during the two update cycles prior to the mapping date.

FARMLAND OF LOCAL IMPORTANCE
Land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. See Appendix C for each county's definition of Farmland of Local Importance.

GRAZING LAND
Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension Service, and other groups interested in knowing the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

URBAN AND BUILT-UP LAND
Land occupied by structures with a building density of at least one unit to one and one-half acres, or approximately six structures to a ten-acre parcel.

OTHER LAND
Land which does not meet the criteria of any other category.

WATER
Water areas with an extent of at least 40 acres.

Interim Farmland Map Categories

Interim Farmland maps are prepared for specific agricultural counties lacking modern soil surveys, such as Butte and Colusa counties, and portions of Kern and Tulare counties. The farmland categories used in these maps are not dependent on modern soil survey information. Two categories of Interim Farmland are mapped in lieu of the categories of Prime Farmland, Farmland of

Statewide Importance, Unique Farmland, and Farmland of Local Importance. The two Interim Farmland categories are explained below.

IRRIGATED FARMLAND
Cropped land with a developed irrigation water supply that is dependable and of adequate quality. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

NONIRRIGATED FARMLAND
Land on which agricultural commodities are produced on a continuing or cyclic basis utilizing stored soil moisture.

The categories of Irrigated Farmland and Nonirrigated Farmland are designed to be easily upgraded to Important Farmland categories as the USDA-NRCS completes modern soil survey mapping and the technical soil information becomes available.

The categories of Grazing Land, Urban and Built-Up Land, Other Land, and Water on Interim Farmland maps are identical to those for Important Farmland maps.

Kern and Tulare counties have USDA-NRCS soil surveys for only parts of their overall area, and for these two counties there is a combination of both Important and Interim categories. When modern soil surveys are completed for Interim sections of these counties, as well as Butte and Colusa counties, they will be scheduled for conversion to Important Farmland maps.

Land Committed to Nonagricultural Use

This category was developed in cooperation with local government planning departments and county boards of supervisors during the public workshop phase of FMMP's development in 1982. Land Committed to Nonagricultural Use (Committed Land) information is available as an overlay to the standard farmland information.

LAND COMMITTED TO NONAGRICULTURAL USE
Existing farmland and grazing land, and vacant areas, which have a permanent commitment for development.

Examples of Committed Land would include an area undergoing permanent infrastructure installation or for which bonds or assessments have been issued for public utilities. Committed Land represents planning areas where there are commitments for future nonagricultural development which is not reversible by a simple majority vote by a city council or board of supervisors. Cities and counties provide this information to the FMMP on a voluntary basis.

CHANGES TO MAPPING IN 1998

Farmland of Local Importance

Legislation passed in 1998 established the opportunity for landowners to create Farmland Security Zones on Williamson Act contracted land that is mapped as Important Farmland by the FMMP. El Dorado and San Joaquin counties

have acted to amend their Farmland of Local Importance definitions to include Grazing Land as part of that definition in order for it to qualify as Important Farmland. The San Joaquin County Board of Supervisors has adopted a new definition for Farmland of Local Importance, and the El Dorado County Board's decision is still pending.

To ensure that the FMMP can continue to distinguish and monitor Grazing Land from cultivated farmland, Grazing Land continues to be identified separately on Important Farmland Series Maps and in conversion tables, but is considered as Farmland of Local Importance in these two counties. The full text of all Farmland of Local Importance definitions can be found in Appendix C.

Map Improvements

Each time the Important Farmland Maps are updated, efforts are made to make the information more accurate and useful. For example, the first color Important Farmland Maps were published in 1996. During the 1998 update, several improvements were made, ranging from additional place-name and road information to major linework revisions to improve spatial accuracy of specified counties.

Base Map Improvements

The road network, drainage feature and place-name components of the published Important Farmland Maps were compiled from the U.S. Geological Survey (USGS) 1:100,000 planimetric map series. The USGS originally produced these maps in 1970.

Growth in urban road networks, as well as in facilities such as golf courses, landfills, and schools, had made identification of many land use locations difficult on older maps. New roads and place names were added to the existing base map files from sources that included commercial road map files, and government databases, as well as Internet searches.

Improved Lake Boundaries

Due to discrepancies between the various sources and scales of base maps, the existing lake boundaries in the Important Farmland files were all replaced during the 1998 update with new linework digitized directly from the USGS 1:24,000 quadrangles. This information was also added to the 1:100,000-scale base maps used for publishing the color maps, so that all the data is now coincident. Minor differences in water acreage and acreage for adjacent map categories will be evident in a comparison of 1996 statistics as published in the *Farmland Conversion Report 1994 to 1996* and this report.

Digital Map Updating Workflow

A major change that began during the 1998 Important Farmland Map update was the initiation of an "all digital" map updating workflow. Continuing improvements in computer hardware and software, and the increasing availability of map

data in digital format is transforming the FMMP map production process and bringing greater accuracy to the Important and Interim Farmland Maps.

During the 1998 update, digital aerial photography was used as a backdrop for making changes in eight Central Valley counties and major portions of Lake, Monterey, and Santa Barbara counties. The Central Valley counties include Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare and Kings. The same high altitude color infrared imagery that has been viewed with a hand magnifier in the past was scanned and registered to digital road network base maps within the computer workstation. All map products are co-registered so that changes do not have to be estimated during transfer from photo to map. An example from Madera County is shown on the following page.

In addition, the USDA-NRCS has begun issuing soil surveys in digital format. During the 1998 map update cycle, 32 digital soil surveys were released for California, covering all or parts of 25 FMMP counties. This digital data is available from NRCS' Web site (www.nrcs.usda.gov). These surveys are being integrated into FMMP's inventory and can be referenced with the Important and Interim Farmland Maps and used for database queries on changes relating to soil categorization in the future.

Having the digital photo and/or digital soils backdrop also helps to point out where lines that were previously drawn in the hand transfer process were incorrect or over-generalized. Linework shifts and corrections were made to each of the counties updated in the "all digital" method, resulting in anomalous conversion figures such as Urban and Built-Up Land converting to farmland categories. While each shift in linework was generally small, usually less than 100 meters, there is an affect on the overall statistics that is unavoidable. In regard to the soil unit linework, corrections were only made in areas where land use conversions were already occurring.

There is a significant amount of labor involved in making the shift to the "all digital" method, thus it is anticipated that this process will be phased in over the next few biennial update cycles. The Sacramento Valley Region, Kern County, and the San Francisco Bay Region will be the next areas of emphasis for this digital conversion process.

CHAPTER TWO
SUMMARY AND ANALYSIS

EXPLANATION OF TABLES

An acreage summary for each category for all project counties appears in Tables 1 and 2 for 1996 and 1998, respectively. These tables also indicate the percentage of each county that the FMMP maps. Figures for "Total County Area" in Tables 1 and 2 are derived from a digital county line file developed by the U.S. Bureau of Reclamation and adopted by FMMP during the 1996 update. Areas that are not mapped by the FMMP typically do not have modern soil surveys, are large public land holdings, or do not contain significant cultivated agricultural land uses (e.g., National Forest areas, San Francisco County, Alpine County).

Table 3 presents a summary of all Important Farmland conversions between 1996 and 1998. It is a summation of the individual county tables found in Appendix A. Table 3 does not include land use conversions for the Interim Farmland Map sections of Butte, Colusa, Kern, and Tulare counties. Table 3 and the individual county land use conversion tables, found in Appendix A, are composed of three components:

Part I lists acreage figures by category and shows gains, losses, and net changes from 1996 to 1998.

Part II lists acreage for cities and counties which elected to report on Land Committed to Nonagricultural Use. Not all project counties reported information for this table, and in some cases, information was reported for only one of the years inventoried. Data for Part II represents a cumulative total of reported acreage minus any acres that have been physically converted.

Part III reports the amount of acreage converted from one land use category to another. Conversion data is determined on a category-to-category basis; eight categories and 56 conversion combinations are reported regarding land use change in areas covered by Important Farmland maps.

ASSUMPTIONS IN ANALYSES

The analyses of conversion data in this chapter are compiled from Part III of all tables in Appendix A. This includes the Interim farmland portions of Butte, Colusa, Kern, and Tulare counties. The integration of Important and Interim Farmland figures in the project-wide and regional analyses result in larger conversion numbers than can be seen in Table 3 alone. The figures can be seen by region in the Regional Conversion Summary (Appendix B).

To facilitate general analyses, grouping of Important and Interim Farmland categories has been conducted and certain simplifying assumptions have been made. For example, Unique Farmland is considered to be an irrigated farmland category in these analyses, even though a small proportion of land within the Unique Farmland category supports high value nonirrigated crops, such as some coastal vineyards. Conversely, Farmland of Local Importance is considered to be a nonirrigated category although it also supports some irrigated pastures on non-Prime and non-Statewide Importance soils.

STATISTICAL NOTES

Residual Polygons

The minimum-mapping unit for all farmland categories, Other Land, and Urban and Built-Up Land is 10 acres. For Grazing Land and Water the minimum mapping unit is 40 acres. Small residual polygons less than the minimum-mapping unit are sometimes created during the map updating process. These residual polygons are too small to be shown on the Important and Interim Farmland maps and are therefore combined with the most appropriate adjacent land use type on the map. These changes are statistically tabulated during computer processing and are reported as small conversions in the final land use conversion tables.

PROJECT-WIDE CONVERSION SUMMARY

The rate of urbanization in the FMMP project area increased 25 percent between the 1996 and 1998 update cycle. During the 1998 inventory there were 69,885 acres of new Urban Land, compared to 55,859 acres in 1996. Urbanization increased in all categories of land use mapped by the FMMP (Figure 6). Urbanization of irrigated farmland categories increased from 17,385 acres in 1996, to 21,664 acres in 1998.

Aside from urbanization, irrigated farmland conversion occurred due to development of low density residential ranchettes, new or expanded confined livestock facilities, wetland and wildlife habitat set-asides, mining activity and land lying idle for three update cycles (approximately six years).

There was a net decrease of 40,473 acres of irrigated farmland during the 1998 inventory, compared with 65,827 acres lost in the previous update period (Figure 7). This "net loss" represents a 0.45 percent decline from 9.02 million irrigated acres mapped in 1996 to 8.98 million acres in 1998.

Conversions from Grazing Land during the 1998 inventory totaled 70,108 acres. Much of the conversion was to irrigated and nonirrigated farmland expansion, but substantial amounts of Grazing Land were also converted to rural ranchette development, as well as to recreational use and habitat preserves.

Net losses from Prime Farmland and Farmland of Statewide Importance totaled 54,183 acres. Proportionally, 62 percent of this loss was from Prime Farmland (33,412 acres), and 38 percent (20,771 acres) was from Farmland of Statewide Importance. These losses were offset to some degree by a net gain of 22,493 acres of irrigated farmland on lesser quality soils (Unique Farmland).

Nearly one-third of the gross loss of Prime Farmland was conversion to Farmland of Local Importance, primarily because the land had been left idle or used for dryland farming for three update cycles. This land could also be left idle in areas adjacent to existing Urban Land in anticipation of new development.

Additional reasons why Prime Farmland had been left idle were market or water supply issues, drainage and salinity problems, or other economic issues. Tracking idle land minimizes the effects of crop rotation cycles that leave the land fallow for a number of seasons. Should any of this land become irrigated in the future, it will be shown as a conversion to irrigated farmland.

REGIONAL CONVERSION SUMMARY AND RANKING

The FMMP project counties were aggregated into eight regions (Figure 8) based on climate and geography, in order to examine the relative amount of change in different parts of the state. The most important types of conversion were summarized for each region

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Land Resource Protection

TABLE 1
1996 ACREAGE SUMMARY

COUNTY	IMPORTANT FARMLAND				IMPORTANT FARMLAND SUBTOTAL	GRAZING LAND	AGRICULTURAL LAND SUBTOTAL	URBAN & BUILT-UP LAND	OTHER LAND	WATER AREA	COUNTY AREA INVENTORIED (1)	PERCENT MAPPED	COUNTY AREA NOT INVENTORIED	TOTAL COUNTY AREA
	PRIME	STATEWIDE	UNIQUE	LOCAL										
Alameda	7,567	1,515	1,401	0	10,483	250,380	260,863	138,064	73,882	52,528	525,337	100%	0	525,337
Amador	3,577	1,510	2,751	3,738	11,576	191,327	202,903	7,181	84,968	5,323	300,375	77%	87,450	387,825
Contra Costa	41,093	13,936	6,703	46,661	108,393	174,171	282,564	136,253	43,428	51,774	514,019	100%	0	514,019
El Dorado	1,211	1,055	4,521	81,482	88,269	185,443	273,712	25,355	230,456	6,880	536,403	47%	608,520	1,144,923
Fresno	371,858	143,001	96,008	31,168	642,035	308,350	950,385	89,297	79,635	3,877	1,123,194	29%	2,727,318	3,850,512
Glenn	171,102	89,677	11,698	136,454	408,931	176,310	585,241	5,323	252,586	5,979	849,129	100%	0	849,129
Imperial	200,239	321,730	592	33,031	555,592	0	555,592	23,498	448,494	985	1,028,569	36%	1,839,857	2,868,426
Kern	539,555	113,492	55,691	0	708,738	895,051	1,603,789	75,261	870,578	991	2,550,619	49%	2,670,763	5,221,382
Kings	142,578	433,887	24,772	5,778	607,015	243,778	850,793	27,228	12,720	45	890,786	100%	0	890,786
Lake	17,120	1,415	8,064	18,794	45,393	245,293	290,686	12,666	500,838	46,793	850,983	100%	0	850,983
Los Angeles	24,355	977	871	30,680	56,883	218,002	274,885	155,660	643,502	3,457	1,077,504	43%	1,451,966	2,529,470
Madera	102,531	85,709	156,434	37,002	381,676	401,701	783,377	22,595	49,155	5,918	861,045	63%	516,490	1,377,535
Marin	168	325	124	67,766	68,383	91,924	160,307	39,763	133,977	44,615	378,662	100%	0	378,662
Mariposa	29	98	131	0	258	408,200	408,458	2,162	71,779	6,047	488,446	52%	447,151	935,597
Merced	288,415	159,788	93,580	51,241	593,024	583,709	1,176,733	30,183	37,526	16,978	1,261,420	100%	0	1,261,420
Modoc	73,211	47,672	8,111	100,333	229,327	601,333	830,660	3,467	17,241	56,298	907,666	34%	1,782,015	2,689,681
Monterey	173,238	38,209	13,610	0	225,057	1,078,186	1,303,243	49,231	762,274	6,379	2,121,127	100%	0	2,121,127
Napa	29,519	7,432	15,027	22,142	74,120	186,722	260,842	20,325	202,157	22,535	505,859	100%	0	505,859
Nevada	375	1,013	314	19,888	21,590	130,367	151,957	14,508	122,778	2,145	291,388	47%	332,448	623,836
Orange	13,068	1,225	5,943	0	20,236	38,953	59,189	262,247	187,038	986	509,460	100%	0	509,460
Placer	9,867	5,546	23,301	114,270	152,984	33,694	186,678	35,002	184,804	5,047	411,531	43%	548,559	960,090
Riverside	168,763	55,842	41,320	241,461	507,386	135,507	642,893	231,987	1,001,125	58,611	1,934,616	41%	2,738,479	4,673,095
Sacramento	123,104	74,276	11,369	28,426	237,175	170,710	407,885	146,904	62,833	18,461	636,083	100%	0	636,083
San Benito	35,432	11,588	847	39,045	86,912	592,539	679,451	6,181	202,738	1,019	889,389	100%	0	889,389
San Bernardino	30,722	12,169	4,314	5,258	52,463	954,967	1,007,430	232,605	234,939	1,015	1,475,989	11%	11,391,800	12,867,789
San Diego	11,100	13,902	67,734	105,190	197,926	142,857	340,783	307,169	1,507,356	11,385	2,166,693	80%	545,507	2,712,200
San Joaquin	433,134	98,163	48,759	53,479	633,535	156,185	789,720	69,739	42,905	10,236	912,600	100%	0	912,600
San Luis Obispo	40,208	11,658	26,749	278,987	357,602	662,367	1,019,969	37,054	234,759	10,389	1,302,171	61%	822,036	2,124,207
San Mateo	2,531	177	2,739	4,024	9,471	45,756	55,227	70,158	162,387	65,679	353,451	100%	0	353,451
Santa Barbara	69,532	5,787	25,168	28,160	128,647	597,097	725,744	59,268	250,538	4,264	1,039,814	64%	593,776	1,633,590
Santa Clara	33,871	5,174	1,345	8,806	49,196	404,279	453,475	176,726	196,567	8,457	835,225	100%	0	835,225
Santa Cruz	17,230	3,068	4,203	718	25,219	16,187	41,406	27,719	216,227	357	285,709	100%	0	285,709
Shasta	21,502	4,685	402	10,212	36,801	410,145	446,946	30,014	538,217	6,053	1,021,230	41%	1,443,943	2,465,173
Sierra Valley (2)	3,336	4,071	3,146	75,358	85,911	108,065	193,976	745	2,975	75	197,771	4%	5,111,595	5,309,366
Siskiyou	92,373	30,714	30,618	657,125	810,830	377,765	1,188,595	12,907	59,605	20,185	1,281,292	32%	2,780,933	4,062,225
Solano	150,865	11,498	13,504	0	175,867	202,121	377,988	51,015	101,184	52,182	582,369	100%	0	582,369
Sonoma	34,269	15,684	22,163	96,993	169,109	441,852	610,961	64,067	333,953	17,079	1,026,060	100%	0	1,026,060
Stanislaus	170,048	27,832	49,042	38,140	285,062	116,640	401,702	49,171	21,919	5,450	478,242	49%	491,927	970,169
Sutter	170,171	113,441	23,252	0	306,864	49,478	356,342	10,618	20,718	1,762	389,440	100%	0	389,440
Tehama	77,153	18,651	19,088	131,226	246,118	706,585	952,703	10,758	869,901	6,133	1,839,495	97%	53,405	1,892,900
Tulare	85,497	28,529	6,913	70,543	191,482	446,037	637,519	11,582	151,722	4,629	805,452	26%	2,293,824	3,099,276
Ventura	52,141	37,611	22,437	11,148	123,337	208,752	332,089	92,883	127,041	3,939	555,952	47%	618,021	1,173,973
Yolo	269,149	18,805	59,699	73,118	420,771	143,261	564,032	24,472	57,577	7,371	653,452	100%	0	653,452
Yuba	46,491	11,011	37,845	0	95,347	142,225	237,572	11,110	156,953	6,192	411,827	100%	0	411,827
TOTAL	4,349,298	2,083,548	1,052,303	2,757,845	10,242,994	13,674,271	23,917,265	2,910,121	11,563,955	666,503	39,057,844		41,897,783	80,955,627

COUNTY	INTERIM FARMLAND		INTERIM FARMLAND SUBTOTAL	GRAZING LAND	AGRICULTURAL LAND SUBTOTAL	URBAN & BUILT-UP LAND	OTHER LAND	WATER AREA	COUNTY AREA INVENTORIED (1)	PERCENT MAPPED	COUNTY AREA NOT INVENTORIED	TOTAL COUNTY AREA
	IRRIGATED	NON-IRRIGATED										
Butte	257,708	9,366	267,074	264,589	531,663	38,888	326,405	20,953	917,909	86%	155,344	1,073,253
Colusa	329,347	10,756	340,103	237,871	577,974	4,175	84,565	1,904	668,618	90%	71,775	740,393
Kern	297,727	10,009	307,736	868,822	1,176,558	21,175	1,464,162	8,868	2,670,763	51%	2,550,619	5,221,382
Tulare	649,717	7,408	657,125	10,339	667,464	35,094	77,857	0	780,415	25%	2,318,861	3,099,276
TOTAL	1,534,499	37,539	1,572,038	1,381,621	2,953,659	99,332	1,952,989	31,725	5,037,705		5,096,599	10,134,304

Notes to the Reader:

1. "County Area Inventoried" represents those counties and portions of counties mapped by the Farmland Mapping and Monitoring Program.
2. Lassen, Plumas, and Sierra counties are included within the tri-county area referred to as "Sierra Valley" in the USDA-NRCS soil survey for that region.

TABLE 2
1998 ACREAGE SUMMARY

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Land Resource Protection

COUNTY	IMPORTANT FARMLAND				IMPORTANT FARMLAND SUBTOTAL	GRAZING LAND	AGRICULTURAL LAND SUBTOTAL	URBAN & BUILT-UP LAND	OTHER LAND	WATER AREA	COUNTY AREA INVENTORIED (1)	PERCENT MAPPED	COUNTY AREA NOT INVENTORIED	TOTAL COUNTY AREA
	PRIME	STATEWIDE	UNIQUE	LOCAL										
Alameda	7,560	1,358	1,599	0	10,517	248,354	258,871	139,998	73,940	52,528	525,337	100%	0	525,337
Amador	3,765	1,739	2,773	2,957	11,234	191,370	202,604	7,312	85,136	5,323	300,375	77%	87,450	387,825
Contra Costa	39,587	12,242	6,650	47,835	106,314	173,041	279,355	137,517	43,894	53,253	514,019	100%	0	514,019
El Dorado	1,200	1,043	4,620	81,283	88,146	185,283	273,429	25,690	230,404	6,880	536,403	47%	608,520	1,144,923
Fresno	367,190	141,050	95,217	32,644	636,101	319,814	955,915	93,313	70,075	3,891	1,123,194	29%	2,727,318	3,850,512
Glenn	168,455	88,637	11,075	139,989	408,156	176,297	584,453	5,379	253,281	6,016	849,129	100%	0	849,129
Imperial	199,707	319,372	592	35,218	554,889	0	554,889	23,952	448,743	985	1,028,569	36%	1,839,857	2,868,426
Kern	537,032	112,258	54,097	0	703,387	895,145	1,598,532	79,230	871,866	991	2,550,619	49%	2,670,763	5,221,382
Kings	142,528	429,172	24,496	6,512	602,708	244,174	846,882	28,244	15,594	66	890,786	100%	0	890,786
Lake	16,719	1,408	9,214	18,952	46,293	243,172	289,465	13,453	501,272	46,793	850,983	100%	0	850,983
Los Angeles	24,632	991	933	30,736	57,292	218,118	275,410	159,533	639,104	3,457	1,077,504	43%	1,451,966	2,529,470
Madera	102,125	85,397	160,891	30,576	378,989	399,229	778,218	22,242	54,667	5,918	861,045	63%	516,490	1,377,535
Marin	168	312	26	66,969	67,475	91,848	159,323	40,240	134,424	44,675	378,662	100%	0	378,662
Mariposa	29	98	131	0	258	408,330	408,588	2,226	71,585	6,047	488,446	52%	447,151	935,597
Merced	289,057	160,066	96,593	47,929	593,645	580,934	1,174,579	30,559	39,304	16,978	1,261,420	100%	0	1,261,420
Modoc	73,218	47,677	8,252	100,333	229,480	601,255	830,735	3,467	17,166	56,298	907,666	34%	1,782,015	2,689,681
Monterey	170,766	38,713	15,239	0	224,718	1,076,031	1,300,749	50,031	764,102	6,245	2,121,127	100%	0	2,121,127
Napa	29,936	8,063	15,752	20,653	74,404	185,643	260,047	20,599	202,678	22,535	505,859	100%	0	505,859
Nevada	375	988	304	20,279	21,946	129,889	151,835	14,647	122,761	2,145	291,388	47%	332,448	623,836
Orange	11,099	842	6,259	0	18,200	38,517	56,717	269,987	181,770	986	509,460	100%	0	509,460
Placer	9,750	5,196	22,726	114,453	152,125	31,695	183,820	37,609	185,055	5,047	411,531	43%	548,559	960,090
Riverside	159,462	53,766	41,674	246,838	501,740	134,597	636,337	240,889	1,000,442	56,948	1,934,616	41%	2,738,479	4,673,095
Sacramento	121,974	67,713	13,521	33,732	236,940	165,253	402,193	150,716	64,922	18,252	636,083	100%	0	636,083
San Benito	34,278	9,766	902	39,381	84,327	593,629	677,956	6,749	203,665	1,019	889,389	100%	0	889,389
San Bernardino	29,975	12,027	3,889	5,036	50,927	954,229	1,005,156	234,981	234,837	1,015	1,475,989	11%	11,391,800	12,867,789
San Diego	10,660	13,617	67,535	105,001	196,813	142,335	339,148	311,491	1,504,625	11,429	2,166,693	80%	545,507	2,712,200
San Joaquin	429,168	96,795	52,715	53,682	632,360	152,699	785,059	71,596	44,297	11,648	912,600	100%	0	912,600
San Luis Obispo	39,892	13,912	30,096	273,888	357,788	661,921	1,019,709	37,183	234,890	10,389	1,302,171	61%	822,036	2,124,207
San Mateo	2,644	177	2,963	3,933	9,717	45,751	55,468	70,831	161,417	65,735	353,451	100%	0	353,451
Santa Barbara	72,115	6,764	29,327	26,199	134,405	589,640	724,045	59,532	251,973	4,264	1,039,814	64%	593,776	1,633,590
Santa Clara	32,009	4,901	1,413	8,687	47,010	390,677	437,687	179,481	209,600	8,457	835,225	100%	0	835,225
Santa Cruz	17,179	3,057	4,393	869	25,498	16,718	42,216	28,588	214,548	357	285,709	100%	0	285,709
Shasta	20,207	4,581	358	10,173	35,319	409,838	445,157	31,196	538,824	6,053	1,021,230	41%	1,443,943	2,465,173
Sierra Valley (2)	9,692	4,671	2,644	91,832	108,839	80,706	189,545	745	7,406	75	197,771	4%	5,111,595	5,309,366
Siskiyou	92,802	30,619	34,151	653,253	810,825	376,936	1,187,761	12,985	60,361	20,185	1,281,292	32%	2,780,933	4,062,225
Solano	150,356	11,086	13,970	0	175,412	199,271	374,683	53,130	102,374	52,182	582,369	100%	0	582,369
Sonoma	35,687	16,778	25,037	92,867	170,369	438,636	609,005	66,178	333,663	17,214	1,026,060	100%	0	1,026,060
Stanislaus	166,560	27,398	48,995	37,653	280,606	116,644	397,250	50,481	24,970	5,541	478,242	49%	491,927	970,169
Sutter	170,229	113,680	22,235	0	306,144	49,821	355,965	10,669	21,044	1,762	389,440	100%	0	389,440
Tehama	77,603	19,436	19,492	129,700	246,231	706,332	952,563	10,792	870,007	6,133	1,839,495	97%	53,405	1,892,900
Tulare	84,979	28,467	7,228	70,730	191,404	445,133	636,537	11,929	152,357	4,629	805,452	26%	2,293,824	3,099,276
Ventura	51,817	37,698	22,644	11,076	123,235	207,853	331,088	95,522	125,403	3,939	555,952	47%	618,021	1,173,973
Yolo	265,916	18,204	55,245	74,301	413,666	143,384	557,050	25,586	63,445	7,371	653,452	100%	0	653,452
Yuba	45,784	11,042	36,930	0	93,756	143,223	236,979	11,179	157,477	6,192	411,827	100%	0	411,827
TOTAL	4,315,886	2,062,777	1,074,796	2,766,149	10,219,608	13,603,365	23,822,973	2,977,657	11,589,368	667,846	39,057,844		41,897,783	80,955,627

COUNTY	INTERIM FARMLAND		INTERIM FARMLAND SUBTOTAL	GRAZING LAND	AGRICULTURAL LAND SUBTOTAL	URBAN & BUILT-UP LAND	OTHER LAND	WATER AREA	COUNTY AREA INVENTORIED (1)	PERCENT MAPPED	COUNTY AREA NOT INVENTORIED	TOTAL COUNTY AREA
	IRRIGATED	NON-IRRIGATED										
Butte	255,245	9,476	264,721	264,778	529,499	39,243	328,214	20,953	917,909	86%	155,344	1,073,253
Colusa	329,049	11,496	340,545	234,874	575,419	4,293	87,002	1,904	668,618	90%	71,775	740,393
Kern	295,972	6,389	302,361	872,449	1,174,810	21,549	1,465,536	8,868	2,670,763	51%	2,550,619	5,221,382
Tulare	645,450	8,145	653,595	10,318	663,913	36,596	79,906	0	780,415	25%	2,318,861	3,099,276
TOTAL	1,525,716	35,506	1,561,222	1,382,419	2,943,641	101,681	1,960,658	31,725	5,037,705		5,096,599	10,134,304

Notes to the Reader:

1. "County Area Inventoried" represents those counties and portions of counties as mapped by the Farmland Mapping and Monitoring Program.
2. Lassen, Plumas, and Sierra counties are included within the tri-county area referred to as "Sierra Valley" in the USDA-NRCS soil survey for that region.

and are shown in Appendix B. Regional rankings of Appendix B data are shown in Tables 4 and 5.

The Southern California Region continues to be the most active in terms of overall urbanization, with a net increase of 30,306 acres (43 percent) of new Urban Land (Table 4). About 22 percent of new Urban Land in this region was developed on irrigated farmland, with the remainder coming from areas of native vegetation, dryland farming, and grazing. This Region had a loss of 17,864 acres of irrigated farmland during the 1998 update period (Table 5), down somewhat from the 19,836 acres of irrigated land lost in 1996.

The San Joaquin Valley Region, although second in overall urbanization, ranked first in conversion of irrigated farmland to Urban Land. A total of 9,505 acres of new Urban Land occurred on irrigated farmland in this region, which is an increase from the 7,919 acres reported in 1996. The Southern California Region ranked second in the conversion of irrigated farmland to Urban Land, with 6,817 acres, which was up from the 4,632 acres of irrigated land converted to Urban Land in 1996.

The Sacramento Valley Region led the state with a 23,015-acre overall loss of irrigated farmland. This loss was substantially more than the 4,745 acres lost during the 1996 update. Much of the loss was due to land left idle for three update cycles, ranchette development and the establishment of wetland and wildlife areas. New urban development accounted for 8 percent of the irrigated farmland loss.

The San Francisco Bay Region accounted for 12,472 acres of new Urban Land, third in overall urbanization. Its growth rate was up from the 8,217 acres reported for the previous update cycle. About 16 percent of the new Urban Land in the region occurred on irrigated farmland.

The four remaining regions of the state- Central Coast, Northeastern, Northwestern and Sierra Foothill- accounted for 7 percent (1,560 acres) of all new urban conversion from irrigated farmland. Most of this growth was accounted for in the Sierra Foothill Region (3,276 acres), which had about the same growth rate as in the prior reporting period (3,570 acres). The Central Coast Region experienced a reduction in the urbanization rate with 1,761 acres in 1998 versus 4,703 acres in 1996.

The counties of the Northeastern Region showed only a modest increase in new Urban Land in the current reporting period with 78 acres, compared to only 21 acres in 1996. The current report is the first time conversion data has been gathered for the Northwestern Region. Lake County, the sole county in the region, showed an urban increase of 787 acres.

This reporting period saw four regions with a net increase in irrigated land. The Northeastern Region gained 10,474 new acres of irrigated land, primarily in the Sierra Valley where pasture and alfalfa were identified as being flood

TABLE 3
LAND USE CONVERSION SUMMARY
1996-1998 Land Use Conversion

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Land Resource Protection

Farmland Mapping and Monitoring Program

PART I
Land Use Totals and Net Changes

LAND USE CATEGORY	TOTAL ACREAGE INVENTORIED		1996-98 ACREAGE CHANGES			
	1996	1998	ACRES LOST (-)	ACRES GAINED (+)	TOTAL ACREAGE CHANGED	NET ACREAGE CHANGED
Prime Farmland	4,349,298	4,315,886	99,479	66,067	165,546	-33,412
Farmland of Statewide Importance	2,083,548	2,062,777	56,310	35,539	91,849	-20,771
Unique Farmland	1,052,303	1,074,796	46,614	69,107	115,721	22,493
Farmland of Local Importance	2,757,845	2,766,149	84,794	93,098	177,892	8,304
IMPORTANT FARMLAND SUBTOTAL	10,242,994	10,219,608	287,197	263,811	551,008	-23,386
Grazing Land	13,674,271	13,603,365	133,085	62,179	195,264	-70,906
AGRICULTURAL LAND SUBTOTAL	23,917,265	23,822,973	420,282	325,990	746,272	-94,292
Urban and Built-Up Land	2,910,121	2,977,657	19,362	86,898	106,260	67,536
Other Land	11,563,955	11,589,368	87,102	112,515	199,617	25,413
Water Area	666,503	667,846	2,767	4,110	6,877	1,343
TOTAL AREA INVENTORIED (1)	39,057,844	39,057,844	529,513	529,513	1,059,026	0

PART II
Land Committed to Nonagricultural Use

LAND USE CATEGORY	TOTAL ACREAGE 1998
Prime Farmland	29,764
Farmland of Statewide Importance	6,785
Unique Farmland	5,454
Farmland of Local Importance	37,406
IMPORTANT FARMLAND SUBTOTAL	79,409
Grazing Land	73,142
AGRICULTURAL LAND SUBTOTAL	152,551
Urban and Built-Up Land	0
Other Land	50,655
Water Area	0
TOTAL ACREAGE REPORTED	203,206

PART III Land Use Conversion from 1996 to 1998

LAND USE CATEGORY		Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	Subtotal Important Farmland	Grazing Land	Total Agricultural Land	Urban and Built-Up Land	Other Land	Water Area	Total Converted To Another Use
Prime Farmland	to:	--	5,492	5,604	28,045	39,141	13,580	52,721	19,449	26,684	625	99,479
Farmland of Statewide Importance	to:	4,938	--	3,521	20,138	28,597	8,177	36,774	5,485	14,023	28	56,310
Unique Farmland	to:	6,562	3,046	--	7,929	17,537	10,872	28,409	2,244	15,961	0	46,614
Farmland of Local Importance	to:	20,989	11,265	22,301	--	54,555	10,199	64,754	8,445	9,853	1,742	84,794
IMPORTANT FARMLAND SUBTOTAL		32,489	19,803	31,426	56,112	139,830	42,828	182,658	35,623	66,521	2,395	287,197
Grazing Land	to:	14,817	7,642	25,964	31,137	79,560	--	79,560	16,785	36,597	143	133,085
AGRICULTURAL LAND SUBTOTAL		47,306	27,445	57,390	87,249	219,390	42,828	262,218	52,408	103,118	2,538	420,282
Urban and Built-Up Land	to:	4,022	1,852	961	1,315	8,150	2,480	10,630	--	8,661	71	19,362
Other Land	to:	14,306	6,238	10,756	3,377	34,677	16,870	51,547	34,054	--	1,501	87,102
Water Area	to:	433	4	0	1,157	1,594	1	1,595	436	736	--	2,767
TOTAL ACREAGE CONVERTED	to:	66,067	35,539	69,107	93,098	263,811	62,179	325,990	86,898	112,515	4,110	529,513

Notes to the Reader:

(1) This table includes acreage data for 46 counties. Conversion data for counties mapped using Interim Farmland categories (Butte, Colusa, portions of Kern and Tulare counties) are not included.

irrigated during the spring months. The Central Coast showed an increase of 9,744 acres of newly irrigated land, primarily due to new vineyards. The San Francisco Bay and Northwestern regions also had increases in irrigated land, with 1,772 and 742 acres respectively.

COUNTY CONVERSION SUMMARY AND RANKING

The counties leading the state in urbanization of irrigated land were in the Southern California and San Joaquin Valley Regions (Table 6). Riverside County led the state in having the most irrigated farmland converted to Urban Land with 2,335 acres, followed by Fresno County (2,269 acres), and Orange County (1,951 acres).

Southern California counties led the list of the top 10 urbanizing counties during the 1998 inventory. Riverside County led all other counties with 8,902 new urban acres, up from 6,273 acres reported from 1996. Riverside's growth was primarily due to new subdivisions and golf courses around the cities of Corona, San Jacinto, and Perris, and in the Coachella Valley area. Riverside County was also the leader in net losses of irrigated land, with 11,023 acres going out of production.

Orange County experienced substantial urban growth during the current reporting period, showing 7,740 acres of new development, compared to 1,896 in 1996. Much of Orange County's new growth surrounded the cities of Anaheim, Los Alamitos, Orange and Tustin. New subdivisions, business parks and expansions at U.C. Irvine accounted for much of the growth. San Diego gained 4,322 acres of new Urban Land, primarily through new housing, industrial, commercial development, and golf courses around San Luis Rey, Valley Center, Encinitas, Rancho Santa Fe, Del Mar and Poway.

In the San Joaquin Valley, Kern and Fresno counties showed a combined Urban Land increase of 8,359 acres. This was up from the 5,545 acres reported from 1996. New development was concentrated around Bakersfield and Oildale in Kern County, where new housing, schools and a wastewater treatment plant have been built. In Fresno County, the cities of Fresno and Clovis and the Highway 99 corridor saw new housing, agricultural processing plants and a new shopping center.

Sacramento County experienced an increase of 3,812 new acres of Urban Land. The primary areas of growth were around the cities of Elk Grove and Folsom. New housing, shopping centers and golf courses were the primary developments.

In the San Francisco Bay area, Santa Clara County had 2,755 new urban acres. New housing, strip malls and office parks were found around the cities of Milpitas, Morgan Hill and Gilroy, and infill within the City of San Jose.

Placer County was the leading area of new urban growth in the Sierra Foothill Region, with 2,607 acres. Roseville, Stanford Ranch, Granite Bay and Lincoln grew to include

housing, commercial development, four golf courses and expansion of landfills.

The counties with the greatest net loss of irrigated farmland were Riverside, Yolo, Fresno and Kern.
In addition to new housing developments, much of the farmland converted in these counties was due to land lying fallow for three update cycles (six years). The Central Valley had eight of the top ten counties with the largest losses of irrigated farmland.

Santa Barbara County and the Sierra Valley led the state with net gains in irrigated farmland. Santa Barbara's gain of 7,719 acres was due largely to new vineyard development, but the Santa Maria area saw gains in strawberries and row crops as well. The Sierra Valley's gain of 6,454 acres was due to newly identified irrigated pasture and alfalfa.

LAND COMMITTED TO NONAGRICULTURAL USE

Counties and cities may voluntarily submit documentation to FMMP on Land Committed to Nonagricultural Use. This information is then made available as an overlay to the existing land use data. To date, jurisdictions in 39 of the 48 project counties have submitted information for this category. Because the information is voluntarily submitted, includes areas that will change over a long time period, and includes both low- and high-density developments, Committed Land can only be seen as a general indication of expected urbanization trends.

Among the jurisdictions submitting Committed Land data, a total of 205,746 acres are slated for nonagricultural uses in the future (Table 7). Of these lands, 14 percent (29,764 acres) are currently mapped as Prime Farmland by FMMP, and 21 percent (43,693) are within other irrigated categories. Approximately 79 percent of the Committed Land (162,053 acres) is currently mapped as Farmland of Local Importance, Nonirrigated, Grazing Land, and Other Land.

These figures represent an 11 percent increase in Committed Land compared to those reported from the 1996 period. Committed Land located on Prime Farmland decreased by 6 percent over the previous reporting period, and overall irrigated farmland identified as Committed Land use declined by 5 percent.